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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/066,471

01/31/2002

Erik M. Schmauser

11981/IC

3540

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7590

03/29/2004

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER

FRISTOE JR, JOHN K

ART UNIT

PAPER NUMBER

3754

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,471

Applicant(s)

SCHMAUSER ET AL.

Examiner

John K. Fristoe Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4,6-10,12 and 19 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,11,13-18 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed 3/12/2004 have been fully considered but they are not persuasive. Regarding Applicant's argument that there is no motivation or suggestion to modify Itzhaky in view of Schafft, it is the examiner's opinion that there is motivation to combine the references since both references disclose piezoelectric actuators. Regarding Applicant's argument that there would be no reasonable expectation of success, it is the examiner's opinion that there reasonable expectation of success due to the fact that both references disclose piezoelectric actuators and it would be obvious to one skilled in the art of piezoelectric actuators to combine the teachings of both references to arrive at Applicant's claimed invention. Lastly all claimed elements are disclosed within Itzhaky modified by Schafft.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5, 11, 13-15, 16, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,450,204 (Itzhaky) in view of U.S. Pat. No. 3,588,552 (Schafft). Itzhaky discloses a piezoelectrically actuated valve comprising a piezoelectric actuator comprising a bending transducer (7, fig. 3) having a first transducer end (7a), a second transducer end (7b) to be moveable in a longitudinal direction, the second transducer end (7b) being situated opposite (fig. 3) the first transducer end (7a), and wherein the first transducer end (7a) is

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configured as a connection end of the transducer so that the connection end is connectable to an electrical voltage source (col. 4, lines 8-12) to activate the bending transducer (7). The valve further comprising at least one valve channel (4), the at least one valve channel being configured to be closed with a sealing element (14b) and being configured supportable by the transducer (7), a valve housing (2), a first housing groove (fig. 3, where connection 7a is in the housing) that at least partially surrounds on a first peripheral side of the transducer (fig. 3), a second housing groove (fig. 3, where connection 7b is in the housing), the second transducer (7b) end being guided so that the second transducer end is moveable in a longitudinal transducer direction in the second housing groove (fig. 3), wherein the bending transducer (7) is concavely bent (fig. 3) in the direction of the first valve channel (4), a second valve channel (5), wherein another sealing element (14) is situated in a middle region of the transducer (7), the another sealing element (14) being effective on both sides of the middle region of the transducer (7), wherein the another sealing element (14) includes at least one sealing convexity (14a, 14b) directed at at least one of the first valve channel (4) or the second valve channel (5), and a method of manufacturing the above bending transducer comprising the steps of providing an electrically conductive carrier layer, the carrier layer being a flat sheet metal strip, adhering a piezoceramic layer to the electrically conductive carrier layer, and prestressing the electrically conductive carrier layer with the piezoceramic layer along a longitudinal transducer direction by heating and subsequent cooling (col. 2, lines 61-67- col. 3, lines 1-5) but lacks a cylindrical transducer placed at the end of the bender actuator.

Schafft teaches the use of a piezoelectric bender actuator having a cylindrical transducer (13) placed at the end of the bending actuator (fig. 1). It would have been obvious to one of

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ordinary skill in the art at the time the invention was made to modify the piezoelectric valve of Itzhaky by changing the clamping connection (7a) of the bending transducer to a cylindrical connection as taught by Schafft in order reduce the stress on the bender where the bender is connected to the housing.

Allowable Subject Matter

4. Claims 3, 4, 6-10, 12, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

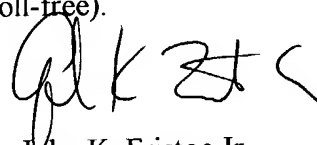
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (703) 308-1437. The examiner can normally be reached on Monday-Friday, 7:00 a.m.-4:30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Louis G. Mancene can be reached on (703) 308-2696. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John K. Fristoe Jr.
Examiner
Art Unit 3754

JKF



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

3/29/04